

**The Commonwealth of Massachusetts
Executive Office for Administration and Finance
Operational Services Division
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**NASCA
2007 Outstanding Program Awards
Application**

Program Title: EnviroCalc: Environmental Benefits and Energy Cost Savings Calculator for Purchasers

Check One: Individual State Award

NASCA State Member: Massachusetts

Submitted by: Marcia Deegler

Title: Director of Environmental Purchasing

Department or Corporation: Commonwealth of Massachusetts, Operational Services Division's Environmentally Preferable Products Procurement Program

The Massachusetts Environmentally Preferable Products Procurement Program is administered by the Operational Services Division (OSD), with the support of the Executive Offices of Environmental Affairs (EOEA), and the Department of Environmental Protection (DEP). The purpose of the Program is to promote the purchase of recycled and other environmentally preferable products to Commonwealth agencies and departments in recognition of the need to make more efficient use of our natural resources, create the markets for the materials collected in recycling programs, limit the use of toxic substances, reduce solid waste volume and disposal costs and foster economic development.

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2. Application Questions and Descriptions

a. Indicate Individual State Award or Partnership between state and private entity.

Individual State Award.

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b. Executive Summary of the Program / Innovation

Over the past several years, numerous federal agencies, state and local governments, colleges and universities and private companies have incorporated environmentally preferable products (EPPs)¹ into their purchasing practices. Governments have proven most active in this area and established numerous programs and policies that mandate or provide preference for the purchase of certain EPPs. These policies are based on the recognition that purchasing EPPs is a proactive means of addressing such environmental concerns as climate change, energy and water conservation, waste minimization and toxics reduction. However, to the delight of many engaged in these purchasing initiatives, EPPs are also resulting in significant cost savings across a broad range of products.

In order for these programs to succeed, however, agencies need to be able to measure the effectiveness of their choices and document the impact of the product's use. This principle is especially true in the case of EPPs, where the environmental benefits (e.g. saved trees, unused landfill space) are not realized exclusively by the purchasing organization and are difficult to measure and track. Until recently, this tracking and quantification of information was difficult at best. As a result, creating a mechanism to accurately present quantifiable data is vital to the success of the overall program development, performance measurement, marketing, and educational outreach efforts.

The tool developed by the Massachusetts Environmentally Preferable Products Procurement Program (the EPP Program) and presented in this application, addresses this very need for a straightforward, user-friendly means of translating purchases of environmental products and services into quantifiable environmental benefits information. The tool will also assist purchasers in:

- Establishing a connection between the EPP purchases they make and environmental benefits and cost savings;
- Identifying priority product areas for program development;
- Measuring program performance;
- Reporting to management, environmental agencies, legislators and activists; and
- Marketing EPP purchasing to other purchasers and the public.

The added benefit is that the tool is readily available to others at no cost. Please visit the website to access EnviroCalc at http://www.mass.gov/Aosd/docs/EPP/EnviroCalc_v1.xls.

c. Address significant innovation in solution development for state government and document the program's effectiveness.

In 2001, the Massachusetts EPP Program began using a combination of available web-based tools and resources to track the environmental impact of the Commonwealth's purchases. However, the calculations proved to be extremely labor intensive. They involved analyzing supplier reports, using multiple third-party models focused on specific products or materials and then combining the model

¹ Environmentally Preferable Products (EPPs) are products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. Such products or services may include, but are not limited to, those which contain recycled content, minimize waste, conserve energy or water, and reduce the amount of toxics disposed or consumed.

outputs into a set of final results (See Appendix A). While many constituents and parallel EPP programs at the federal, state and municipal government levels were also interested in quantifying their impacts, the time and effort required to complete the calculations were prohibitive.

To address this barrier and provide an instrument for broader use, the EPP Program worked to combine all the relevant calculations and models into a single, easy-to-use tool called the EnviroCalc. The tool takes in information provided by an organization's EPP suppliers of various recycled content products and immediately estimates the environmental benefits of those purchases. In addition, the same tool can be used to estimate the cost savings associated with the purchase of numerous energy efficient products.

EnviroCalc is a spreadsheet-based tool designed to estimate the environmental benefits of purchases of recycled-content and energy efficient products. Combining the best available methodologies and models for assessing the environmental impacts of purchasing, it allows the purchaser to simply input the information obtained from the organization's suppliers and receive an instantaneous estimate of the environmental impact of the purchases.

Existing environmental purchasing tools are typically focused on one product type (e.g. copy paper) or attempt to justify a future purchase of a product (e.g. EnergyStar® calculators) as opposed to tracking the benefits of the purchases that have taken place. Unlike these tools, EnviroCalc is designed specifically to fulfill the reporting needs of purchasing departments and covers a broad range of products.

Product Categories Covered by EnviroCalc

- Post-consumer recycled-content products
 - Paper (e.g. janitorial paper products, copy paper, paper used in printing, office supplies, lottery tickets, etc)
 - Recycled plastic products (e.g. traffic cones, recycling bins, plastic containers and carts, etc.)
 - Recycled content metal products
 - Remanufactured furniture
 - Compost and mulch
 - Recycled glass products
 - Remanufactured antifreeze
 - Re-refined motor oil
- Energy efficient products
 - Compact fluorescent light bulbs
 - Computer monitors
 - Copiers
 - Fax machines

Some of the benefits of the EnviroCalc include the ability to:

- Calculate product cost savings based on the purchases of energy efficient products;
- Provide environmental benefit estimates for both recycled-content and energy efficient products;
- Continuously update information (e.g. as additional supplier reports are submitted);
- Interpret environmental benefits through easy-to-understand equivalents (e.g. household energy use, acres of forest preserved);
- View the benefits by product group (e.g. recycled paper products);
- Assess each product group's contribution to a specific environmental benefit (e.g. contribution of recycled paper to the total greenhouse gas emission reduction).

Appendix 2 provides an illustration of EnviroCalc's capabilities based on the Commonwealth of Massachusetts' Fiscal Year 2006 purchases.

d. Provide calculation of actual savings in short and/or long term, if applicable.

EnviroCalc has already helped to achieve a dramatic reduction in the amount of time and effort needed to produce the Program's reports on environmental benefits and cost savings. In many ways, it is an equivalent of hiring the original consultant, but obtaining the results faster and free of charge. Even the environmental purchasing programs using alternative tools to estimate environmental benefits (e.g. EPA's Energy Star Calculator) are also likely to realize a reduction in the amount of resources needed for the task, because EnviroCalc combines and enhances many of those tools.

An important feature of EnviroCalc is its ability to reliably estimate annual cost savings from purchasing energy efficient products (Appendix 2). As a result, EnviroCalc will be a valuable resource to the purchasing departments that previously lacked the resources for estimating both environmental benefits and cost savings associated with their purchases of EPPs.

e. Describe quantitative benefits realized by service recipients, taxpayers, and/or state agencies.

The tool was designed in consultation with the staff of the Operational Services Division and a variety of other Massachusetts state agencies, which provided information on some of the typical products they purchased. For example, the Massachusetts State Lottery worked with their suppliers to obtain information on the standard weights and recycled content of the lottery tickets they purchase. This effort will enable them (as well as any other state lottery buying recycled-content tickets) to use EnviroCalc to estimate the environmental benefits of their purchases.

The use of EnviroCalc will result in a variety of service improvements for the Operational Services Division as well as any other organization using the tool:

- Operational Services Division – OSD's EPP Program tracks the purchases of environmental products to the greatest extent possible and markets the benefits of such purchases to state agencies and others. EnviroCalc will reduce the time and effort necessary to estimate the environmental benefits of last fiscal year's purchases for annual reporting, enabling OSD's environmental staff to perform more other customer service tasks and engage in projects to enhance the program's efforts.
- The Massachusetts State Sustainability Program (SSP), part of the Executive Office of Environmental Affairs, plans to promote EnviroCalc among the state agencies it works with. One of SSP's activity areas is supporting the state agencies' efforts to meet the goals of the 2004 *Massachusetts Climate Protection Plan*. In meeting those goals, EnviroCalc will enable the SSP as well as each agency to track and report the greenhouse gas emission reductions associated with EPP purchases.
- Municipal Departments – Numerous cities and towns across the state are developing action plans that target environmental purchasing as a key means of addressing climate change

issues. EnviroCalc will serve as a valuable tool in assisting these municipal governments with the tracking and reporting on their efforts.

- Business Community – As government increasingly seeks to acquire more EPPs through their state contract purchases, businesses see the advantage and value in raising the level of their corporate environmental profiles. EnviroCalc can easily be used by these companies to highlight any “green” initiatives implemented in their operations and provide them with a tool to clearly document those efforts in the bid process for government contracts.

f. Describe applicability of use by other state, local and/or federal government organizations.

EnviroCalc can be downloaded and used on any computer with Microsoft Office software. Initial presentations of the tool have demonstrated that it has the potential for nationwide adoption throughout all levels of institutional purchasing. As long as an organization is purchasing recycled-content or energy-efficient products, they will be able to use EnviroCalc to estimate the benefits of those purchases.

The tool was designed to be straightforward and uncomplicated for use by purchasing and other professionals with limited environmental expertise and time. As a result, purchasing departments without formalized EPP purchasing programs will be able to use this tool to track their progress and justify implementing additional environmental initiatives.

Types of benefits estimated by EnviroCalc

- Energy savings
- Monetary savings based on energy conservation
- Greenhouse gas (GHG) emission reductions
- Weight of materials recycled
- Weight of materials reused
- Landfill space savings
- Number of trees saved
- Avoided oil extraction

To ensure such ease of application, the EnviroCalc includes a step-by-step *User Guide* that walks users through the structure and navigation of the tool and provides information, such as:

- the type of data required and instructions on how to input it into the tool;
- helpful “tips” relative to various products and what to do if you do not have certain data;
- actual examples of data input using screen shots of the tool;
- guidance on how to customize EnviroCalc to your local conditions and add new products;
- frequently asked questions and answers.

See the guide at: http://www.mass.gov/Aosd/docs/EPP/EnviroCalc_UserGuide_v5.doc.

The Envirocalc was demonstrated at the Eastern Regional NASPO conference in Portland, Maine, and the Responsible Purchasing Network Conference in Washington, DC, and has generated a lot of excitement among the purchasing officials and environmental policy specialists alike. The Institutional Procurement Program of the Center for a New American Dream (www.newdream.org), a major resource to all levels of government and industry on EPP procurement nationwide, has expressed interest in promoting EnviroCalc as part of their services.

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EnviroCalc: Environmental Benefits and Energy Cost Savings Calculator for Purchasers

Last year, the EnviroCalc was uploaded to the new EPP program website. In consideration of the

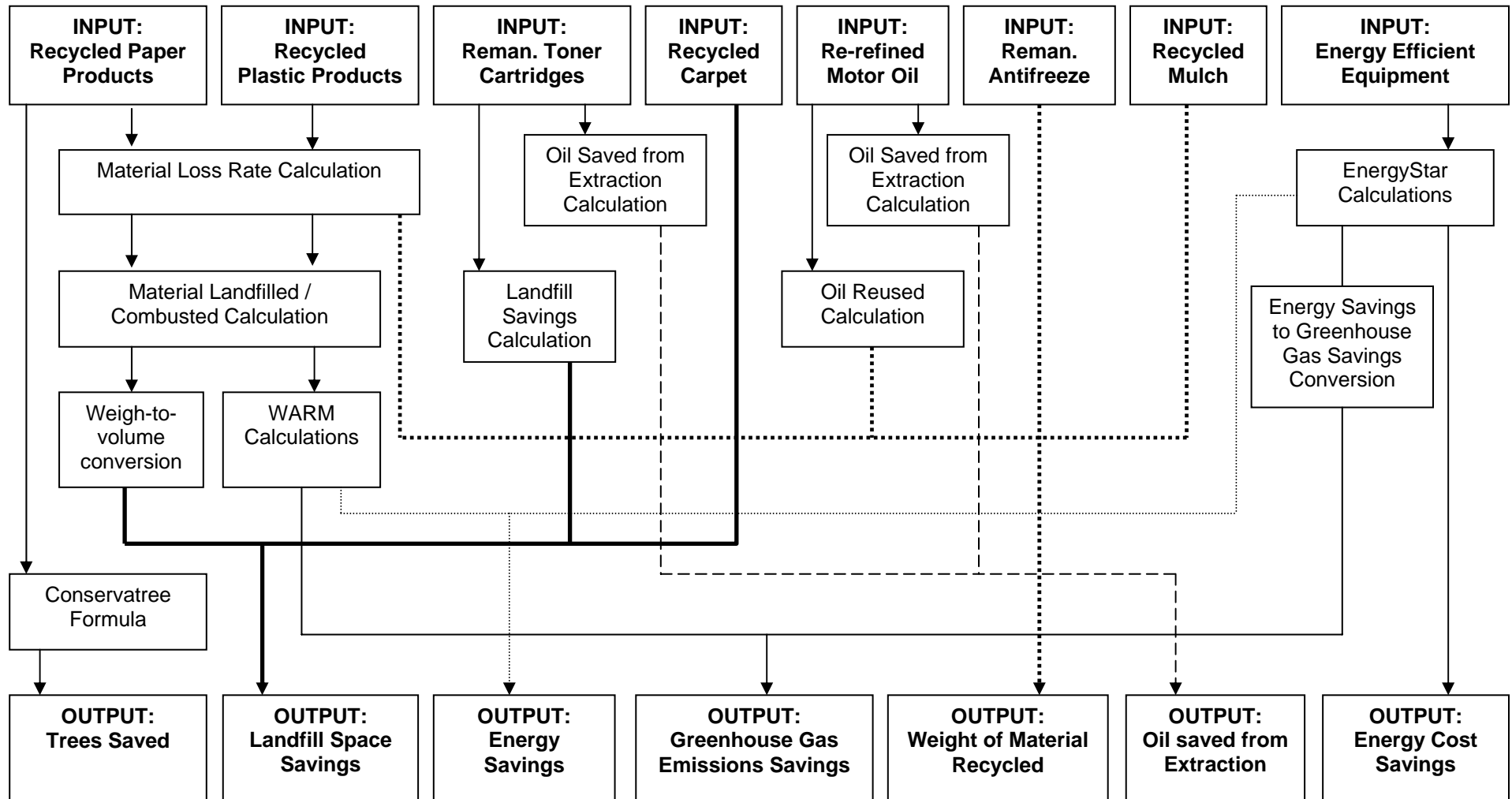


fact that virtually all fifty states in the country have environmental purchasing policies and/or programs, Massachusetts anticipates a considerable amount of use for this tool among federal, state and local governments in particular. In the meantime, the EPP Program is seeking to market greater use for the tool through statewide newsletters and publications, outreach to national purchasing networks and various environmental conferences. In the future, the EPP Program plans to investigate the possibility of expanding the capabilities of the EnviroCalc to evaluate an ever broader selection of

products.

Appendix 1. Original Methodology Used as a Basis for EnviroCalc

The flowchart below summarizes the variety of calculations performed to estimate the environmental benefits of purchasing recycled content and energy efficient products. The challenge of the process was not only in analyzing the supplier reports to obtain data that can be used in appropriate product-specific calculations and models, but also in combining the results produced by the models into a set of final estimates. EnviroCalc eliminates both challenges and is capable of accepting product quantity data as submitted by the supplier and instantaneously estimating the benefits of the purchases.



Appendix 2. Examples of Environmental Benefits Calculations Created with EnviroCalc

Environmental benefit estimates and their “real life” equivalents presented in both “OUTPUT” tables were created using EnviroCalc based on the information provided by the Commonwealth’s suppliers.

INPUT: Summary of Commonwealth of Massachusetts FY2006 EPP Purchases		
• Recycled-Content Purchases		
○ Recycled content paper with (10-30% post-cons.)		22,990 tons
○ Recycled plastic with (8-55% post-cons.)		890 tons
○ Remanufactured toner cartridges (13,834 cartridges)		17 tons*
○ Re-refined motor oil (72,000 gallons)		270 tons*
○ Recycled antifreeze (1,000 gallons)		9 tons*
○ Recycled furniture		62 tons
○ Recycled mulch		140,360 tons*
• Energy Efficient Purchases		
○ Compact Fluorescent Light (CFL) Bulbs		45,300
○ Desktop Computers		25,852
○ Monitors		21,000
* FY05 data		



OUTPUT: Commonwealth of Massachusetts FY2006 Environmental Benefits

	Environmental benefit estimate	Equivalent to...
Energy savings	9,690,412 kWhrs	Annual energy needs of 855 households
Carbon dioxide emissions	21,709 tons	Annual tailpipe emissions of 4263 cars
Landfill space savings	16,582 cubic yards	829 loaded garbage trucks
Number of trees saved	52,911	529 acres of wood plantation
Non-electrical energy savings, million BTU	77,288	Energy content of 13,325 barrels of oil
Weight of materials recycled, tons	4519	Annual solid waste generation of 2123 households



OUTPUT: Commonwealth of Massachusetts FY2006 Energy Cost Savings

	Environmental benefit estimate	Equivalent to...
Energy cost savings	\$1,065,945	13 MA EPP Program’s budgets